

Memorandum

To: David Paylor

From: Hullihen Williams Moore

Date: April 13, 2008

Re: Information re Wise County permits

This memo is in response to your request for board member input regarding the analysis of the permits for the Dominion Wise County project. Below I make requests for data and information that I believe will be helpful for our consideration,

Please let me know if you or Staff have questions. I believe DEQ has, or can by requests obtain, the information. If the information is not reasonably available to it, Staff should just state that. If you have a concern about an item that might be particularly burdensome, let me know. Also, if you think there are other ways to examine the same issue, I'd be glad to discuss this with you.

I. Information regarding coal being burned by Virginia EGUs. Please prepare the following information and data:

1. For Sulfur, ash, and each of the hazardous air pollutants identified by EPA as emitted in substantial quantities by EPA in its MACT rulemaking process ("substance(s)"):

A. Provide the average content of each substance in the coal burned by each boiler for each EGU in Virginia for the years 2005, 2006, and 2007. Also, provide the range of the content for each substance; for example average Sulfur content for a year may be 1%, but Sulfur content ranged from .9% to 1.1% or ash content might average 6%, but range from 4% to 8%.

B. Provide the average content of each substance in the coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007. The averages should be calculated two different ways as follows: simple average giving equal weight to each boiler; weight average based on the tons burned.

2. The average Btu content of the coal burned in each boiler for each EGU in Virginia for the years 2005, 2006, and 2007. Also provide the range of Btu content for each year for each boiler.

3. The average Btu content of the coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007. The average should be weighted by ton.

4. The source and total number of tons of coal burned in each boiler for each EGU in Virginia for the years 2005, 2006, and 2007. Include the country, state, and, if Virginia, the county and mine. If coal came from more than one source, provide the tons from each source for each boiler. Also state the total number of tons of coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007.

5. The average cost per ton(including delivery, washing, cleaning, treating, and/ or otherwise preparing)* of the coal burned in each boiler for each EGU in Virginia for the years 2005, 2006, and 2007.

6. The average cost per ton(including delivery, washing, cleaning, treating, and/or otherwise preparing)* of the coal burned by all EGUs in Virginia combined. The average should be weighted by ton.

7. The average cost per ton(including delivery, washing, cleaning, treating, and/or otherwise preparing)* of coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007 for each of the following Sulfur content percentages(use the average percentage content for each boiler for each year as shown in response to request 1 to determine the appropriate category). The average should be weighted by ton.

.7 to .79%

.8 to .89%

.9 to .99%

1.00 to 1.09%

1.10 to 1.19%

1.20 to 1.29%

1.30 to 1.39%

1.40 to 1.49%

1.50 to 1.99%

2.00 to 2.25%

2.26 to 2.50%

above 2.5%

8. The average cost per ton(including delivery, washing, cleaning, treating, and/or preparing)* of coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007 for each of the following Mercury content categories in ppm (use the average ppm content for each boiler for each year as shown in response to request 1 to determine the appropriate category). The average should be weighted by ton.

.01 to .05ppm

.06 to .10ppm

.11 to .19ppm

.20 to .29ppm

.30 to .39ppm

.40 to .49ppm

.50 to .75ppm

above .76ppm

9. The average cost per ton(including delivery, washing, cleaning, treating, and/or otherwise preparing)* of coal burned by all Virginia EGUs combined for the years 2005, 2006, and 2007 for each of the following Btu content categories (use the average Btu content for each boiler for each year as shown in response to request 2 to determine the appropriate category). The average should be weighted by ton.

- less than 8,500
- 8,500 to 9,499
- 9,500 to 10,499
- 10,500 to 10,999
- 11,000 to 11,499
- 11,500 to 11,999
- 12,000 to 12,499
- 12,500 to 12,999
- 13,000 and above

10. Prepare a matrix for the Wise County facility that will show Sulfur emissions in lb/MMBtu and lb/MWhr with the following variables:

Btus/lb: 8,000; 9,000; 10,000; 11,000; 12,000; 12,500; 13,000
Percent Sulfur: .75; .8; .9; 1.0; 1.1; 1.2; 1.3; 1.4; 1.5; 1.75; 2.0; 2.25.
Percent Sulfur removal rate: 90; 92; 95; 98; 99; 99.5.

11. Prepare an Excel spreadsheet or sheets that will allow the user to see the impact of changing the variables shown in item 10 and emissions in lb/MMBtus and lb/MWhr.

12. Prepare a matrix for the Wise County facility that will show Mercury emissions in lb/MMBtu and lb/GWhr with the following variables:

Btus/lb: 8,000; 9,000; 10,000; 11,000; 12,000; 12,500; 13,000
Mercury content in ppm: .05; .1; .12; .14; 1.6; .18; .2; .3; .35; .4; .5
Percent Mercury removal rate: 90; 92; 95; 98; 99; 99.5.

13. Prepare an Excel spreadsheet or sheets that will allow the user to see the impact of changing various variables shown in item 12 and emissions in lb/MMBtus and lb/GWhr.

II. Comparison of emissions by Virginia EGUs with the limits included in the proposed permits. In my remarks at the March 20, 2008, Board meeting, I compared emissions allowed under the January 7, 2008 and March 4, 2008 draft permits with current limits and actual emissions for SO₂ and Mercury for certain Virginia EGUs as well as Sulfur content in coal burned by Virginia EGUs. Please prepare the necessary data and a matrix comparing current limits and actual emissions of each EGU with the proposed permits for all substances that are controlled or limited by the proposed permits.

III. Coal quality proposed by Dominion. In the January 7, 2008, Engineering Analysis, Staff states that the fuel proposed by Dominion, and the blend upon which the SO₂ PSD limit of .12lb/MMBtu is based, is 60% run-of-mine coal with heat content of 7,782 Btu/lb and maximum Sulfur content of 2.28% and 40% waste coal with heat content of

2,738 Btu/lb and Sulfur content of 1%. Staff advised me that the coal samples used to establish the SO₂ and other BACT limits were to be a “worst case scenario” and that the company might well use higher quality coal to meet the SO₂ and other limits included in the proposed permit. The January Engineering Analysis also states that “Dominion provided data on Mercury content of the various coal types proposed as fuel for the CFB boilers.” The Analysis then states that the Mercury limit in the proposed January permit was based on “the coal fuel listed by Dominion with the highest Mercury content of 0.51 parts per million.” Please provide a list and description of the “various coal types proposed as fuel for the CFB boilers.” Also, provide the “coal fuel list” from which the 0.51 ppm Mercury content coal was taken. Was the same sample used for both the Sulfur and Mercury limits? Were other coals, coal types, or blends presented to, or otherwise considered by, Staff related to Sulfur, Mercury or any other substance. Staff also advised me that Dominion has not settled on a particular mine from which to purchase coal. Given that and the statements in the Analysis, there must have been a number of samples considered by the company and Staff with varying amounts of Sulfur, Mercury and other substances and varying Btu contents. Please provide a comprehensive list of all coals considered, showing which coals or samples were considered for Sulfur and each other substance that is limited or controlled by the proposed permits and identify which coal or sample was used with respect to each such limit or control. Please provide Btu and ash content and the content data for each substance that is limited or controlled by the proposed permits for each sample that was on any “lists” or was otherwise considered.

IV. Dominion “Cost analysis” in Exhibit 7 of Attachment 3 to Dominion’s March 6, 2008 filing with DEQ. This “analysis” states that the cost of alternative coals were based on the current price on the “commodity exchange;” please provide the details of dates, terms, exchanges, etc used to determine the price. Exhibit 7 did not explain how the price of coal to be used in the Wise County facility was determined. Please explain. Was it a spot price on a commodity exchange, an actual, or estimated, long or short term contract? Also, I note that the “analysis” uses as the base for comparison, the run-of-mine coal with 2.28% Sulfur and 7,782 Btu/lb whereas the Engineering Analysis indicates that the SO₂ limits in the proposed permit were based on a blend of 60% of this coal and 40% waste coal with 1% Sulfur and 2,782 Btu/lb. Please explain.

V. Coal cleaning. Dominion states that it will use run-of-mine coal without washing, cleaning, or treating. With regard to coal cleaning, washing, treating, and otherwise preparing*.

1. For each sample identified in III above as being used with respect to establishing limits or controls in the proposed permits, state the content of all substances controlled or limited by the proposed permits and the Btu and ash content of each such sample before washing, cleaning, treating, or otherwise preparing*. (Repeat from III) Please state the impact of washing, cleaning, treating, or otherwise preparing* each such sample for Btu and ash content and each substance limited or controlled by the proposed permits. For example washing may reduce Sulfur content of a particular sample from 2% to 1.5%, reduce Mercury from .35 to .2 ppm, and increase Btu from 8,000 to 12,000 whereas treating may have a greater or lesser impact.

2. Provide the number of tons of coal burned by each EGU without cleaning, washing, treating, or otherwise preparing* for the years 2005, 2006, and 2007. State the type of such coal, run-of-mine, waste coal, etc..

3. Provide the number of tons of coal burned by each EGU with cleaning, washing, or treating or otherwise preparing* for the years 2005, 2006, and 2007. Describe the change or difference that is achieved by washing, cleaning, treating, or preparing with respect to Btu and ash content and each substance controlled or limited by the proposed permits for each Virginia EGU.

4. I recall that at the Mercury Conference several ways to reduce Mercury prior to combustion were discussed, including washing and treating. What are those techniques, how could they be applied to the coal for this plant, and what would the impact be?

* By preparation or preparing, I mean a process that impacts ash, Btu content, or the content of any of the substances that are controlled or limited by the proposed permits. For example, if crushing the coal does not impact or change the properties of the coal, then it should not be considered. I assume that crushing or pulverizing is done at the plant and is not normally considered in cost and coal quality comparisons. I am trying to have data that will allow apples to apples comparisons; please call if you have questions regarding my use of this term or any others.

S: Coal data request 4-9-08